

LASER SYSTEM AND METHOD FOR TREATMENT OF BIOLOGIC TARGETS

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Abstract of the Invention

A long pulse alexandrite laser for treating dermatological specimens is disclosed. The use of alexandrite allows operation in the near-infrared, specifically in a 50 nm range surrounding 755. Infrared in this range allows good penetration while still achieving an acceptable ratio of hemoglobin to melanin absorption. In operation, the laser generates pulses having a durations between 5 and 100 msec and fluences between 10 and 50 J/cm². A light delivery system is provided that transmits the laser light output pulse to dermatological targets of a patient. The invention is also directed to a hair removal system. Here, it is desirable to use an index-matching application on the skin sections to be treated, and a visual indicator is thermo- or photo-responsive or otherwise responsive to the laser light pulse to generate a visible change. Also, the invention is directed to a combined sclerotherapy and light treatment method and kit for unwanted veins. Substantially increased success has been achieved by implementing a dwell time of between 12 hours and 6 months between the light-based therapy and the sclerotherapy. Finally, the invention relates to pulse periodic heating of biologic targets, including systems and methods for generating an effective light output pulse comprising a series of sub-pulses with a limited duty cycle and a periodicity that is less than the thermal relaxation time of the targeted structure.